

Exhibit 4



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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

#4161

Office Action Summary

Application No.

11/241,748

Applicant(s)

MONK ET AL.

Examiner

CAI CHEN

Art Unit

2425

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim(s) 26-44 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention.

A judicial exception claim is non-statutory for solely embodying an abstract idea, natural phenomenon, or law of nature. See M.P.E.P. § 2106(IV)(C)(2). However, a practical application of a judicial exception claim is a § 101 statutory claim "when it:

(A) 'transforms' an article or physical object to a different state or thing [(i.e., a physical transformation, see below)]; or

(B) otherwise produces a useful, concrete and tangible result, based on the factors discussed below " Id.

§ 101 statutory transformations of intangible articles or physical objects must be physical transformations (i. e., a physical component to the transformation must be involved). See M.P.E.P. § 2106(IV)(C)(2) (requiring the element "provides a transformation or reduction of an article to a different state of thing", a "practical application by physical transformation") and Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility,

Official Gazette notice, 22 November 2005, Annex (II)(B)(iii); (III).

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While claims 26-44 recite a series of steps or acts to be performed, a statutory “process” under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing (Reference the May 15, 2008 memorandum issued by Deputy Commissioner for Patent Examining Policy, John J. Love, titled “Clarification of ‘Processes’ under 35 U.S.C. 101”).

The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. Claims 26-44 are non-statutory for being a judicial exception, an abstract idea.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Regarding claim 1, the claim limitation “pre-coder” was never defined in the specification.

Regarding claim 45, the claim limitation “Radio Frequency subsystem” was never defined in the specification.

Claim Objections

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A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

Regarding claim 13, the instant claim cannot depend on the self claim (claim 13).

Claim Rejections - 35 USC § 102

1 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2 Claims 26 and 37-44 are rejected under 35 U.S.C.102 (b) as being anticipated by Gurantz (US 2002/0166124 A1).

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Regarding claim 26, Gurantz discloses a method for communication to at least one node across a building coaxial network (Fig. 2, 5, abstract), the method comprising:

utilizing adaptive communication techniques to produce communication data (Fig. 2, para. 54, an adaptive equalizer is used for data communication within LAN);

and transmitting the communication data to communicate to the at least one node (Fig. 2, para. 20),

wherein transmitting utilizes Time Division Multiple Access ("TDMA") (para. 38-39, page 5, claim 18).

Regarding claim 37, Gurantz discloses wherein the transmitting includes transmitting utilizing multiple frequencies (para. 49-53).

Regarding claim 38, Gurantz discloses wherein transmitting utilizing multiple frequencies utilizes multi-carrier modulation (para. 49-53).

Regarding claim 39, Gurantz discloses transmitting includes transmitting utilizing time division duplexing ("TDD") (para. 38-39).

Regarding claim 40, Gurantz discloses wherein the adaptive communication techniques utilizes orthogonal frequency division multiplexing ("OFDM") with bit-loading (para. 46-49, para. 52-55).

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Regarding claim 41, Gurantz discloses wherein the formatting information utilizes scrambling (para. 46-49, para. 52-55, OFDM frequency bins scrambling).

Regarding claim 42, Gurantz discloses wherein the scrambling is byte scrambling (para. 46-49, para. 52-55, OFDM frequency bins scrambling).

Regarding claim 43, Gurantz discloses wherein the scrambling is OFDM bin scrambling (para. 46-49, para. 52-55, OFDM frequency bins scrambling).

Regarding claim 44, Gurantz discloses including transmitting a probe signal to the at least one node (para. 20, para. 49-53, the modem has a transmitter transmit a OFDM signal to others within the LAN).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8, 10-11, 14, 16-25, and 27-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gurantz in view of Sambamurthy (6,085,248).

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Regarding claim 1, Gurantz discloses modem for communication to at least one node across a building coaxial network (Fig. 2, abstract, para. 20), the modem comprising:

a transmitter (Fig. 1, el. 270 or el. 280, para. 20, the modem has a transmitter); and

a pre-coder in signal communication with the transmitter (para. 47, an encoder encodes data bits for transmission),

wherein the pre-coder utilizes adaptive communication techniques to communicate to the at least one node (Fig. 2, para. 54, an adaptive equalizer is used for data communication within LAN),

and wherein the transmitter communicates with at least one node using Time Division Multiple Access ("TDMA") (para. 38-39, page 5, claim 18).

Gurantz does not explicitly disclose utilizing packet communications.

Sambamurthy teaches utilizing packet communications (abstract, Fig. 1B, Fig. 5A, col. 5, lines 60-col. 6, line 12, col. 22, lines 5-53).

It would be obvious to one of ordinary in the art at the time of invention to modify Gurantz to include utilizing packet communications, as taught by Sambamurthy, in order to perform better in data communication by using packet communication when during high data communication traffic period (col. 6, lines 1-12).

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Regarding claim 2, Gurantz in view of Sambamurthy discloses wherein the transmitter is a baseband transmitter (Gurantz, para. 42, transmitting the baseband signal).

Regarding claim 3, Gurantz in view of Sambamurthy discloses wherein the transmitter is a Radio Frequency ("RF") transmitter (Gurantz, para. 42 and 49).

Regarding claim 4, Gurantz in view of Sambamurthy teaches wherein the packet communication utilizes services (Sambamurthy, abstract, Fig. 1B, Fig. 5A, col. 5, lines 60-col. 6, line 12, col. 22, lines 5-53).

Regarding claim 5, Gurantz in view of Sambamurthy further discloses wherein the transmitter communicates with at least one node using Time Division Duplex ("TDD") (Gurantz, para. 38-39, Sambamurthy, abstract, Fig. 1B, Fig. 5A, col. 5, lines 60-col. 6, line 12, col. 22, lines 5-53).

Regarding claim 6, Gurantz in view of Sambamurthy discloses wherein the packet communication utilizes formatting that includes a preamble; and a packet of data (Sambamurthy, Fig. 1B, 5A, col. col. 5, lines 60-col. 6, line 12, col. 22, lines 5-53).

Regarding claim 7, Gurantz in view of Sambamurthy discloses wherein the packet communications includes multiple packets types chosen from the group

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consisting of: probe packet; robust packet; and **data packet** (Sambamurthy, Fig. 1B, 5A, and 13, col. 22, lines 5-53, col. 32, lines 27-67, col. 33, lines 1-11).

Regarding claim 8, Gurantz in view of Sambamurthy discloses wherein the packet types include packet properties and wherein the transmitter (para. 47 and 53) is capable of changing the packet properties of the packet types on a packet-by-packet basis (Sambamurthy, Fig. 1B, 5A, and 13, col. 22, lines 5-53, col. 32, lines 27-67, col. 33, lines 1-11).

Regarding claim 10, Gurantz in view of Sambamurthy discloses wherein the scrambling formatting includes Reed Solomon ("RS") encoding (Gurantz, para. 53).

Regarding claim 11, Gurantz in view of Sambamurthy discloses wherein the packet is padded to include an integral number of similar size and coding type RS codewords (Gurantz, para. 53, Sambamurthy, Fig. 1B, 5A, and 13, col. 22, lines 5-53, col. 32, lines 27-67, col. 33, lines 1-11).

Regarding claim 14, Gurantz in view of Sambamurthy discloses wherein the transmitter utilizes orthogonal frequency division multiplexing ("OFDM") modulation (Gurantz para. 46-49, para. 52-55).

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Regarding claim 16, Gurantz in view of Sambamurthy discloses wherein the pre-coder utilizes orthogonal frequency division multiplexing ("OFDM") bit-loading (Gurantz para. 46-49, para. 52-55).

Regarding claim 17, Gurantz in view of Sambamurthy discloses wherein the formatting utilizes scrambling (Gurantz para. 46-49, para. 52-55, OFDM frequency bins scrambling).

Regarding claim 18, Gurantz in view of Sambamurthy discloses wherein the scrambling is byte scrambling (Gurantz para. 46-49, para. 52-55, OFDM frequency bins scrambling).

Regarding claim 19, Gurantz in view of Sambamurthy discloses wherein the scrambling is OFDM bin scrambling (Gurantz para. 46-49, para. 52-55, OFDM frequency bins scrambling).

Regarding claim 20, Gurantz in view of Sambamurthy discloses wherein the transmitter utilizes a modulation type

on each of its subcarriers chosen from the group consisting of: bipolar phase shift keying ("BPSK"); quadrature phase shift keying ("QPSK"); 8 quadrature amplitude modulation ("QAM"); 16 QAM; 32 QAM; 64 QAM; 128 QAM; and 256 QAM (Gurantz para. 49-50).

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Regarding claim 21, Gurantz in view of Sambamurthy discloses wherein the modulation type is obtained from a translation table that maps data to waveform data (Gurantz para. 47-49, IDFT generates the OFDM waveforms data).

Regarding claim 22, Gurantz in view of Sambamurthy discloses wherein an amplitude factor is applied to the various modulation types (Gurantz para. 47-49).

Regarding claim 23, Gurantz in view of Sambamurthy discloses wherein the transmitter is capable of producing and transmitting a probe signal to the at least one node (Gurantz para. 20, the modem has a transmitter capable of sending a probe signal during the communication with other within LAN).

Regarding claim 24, Gurantz in view of Sambamurthy discloses wherein the transmitter wherein the transmitter is capable of producing a robust signal that includes redundant, repetitious subcarriers (Gurantz para. 20, para. 49-53, the modem has a transmitter capable of producing a probe signal during the communication with other within LAN by using the method of OFDM, and in the process the OFDM will create multiple subcarrier representing by 1 or 0, therefore subcarrier 1 or 0 will repeat during OFDM process).

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Regarding claim 25, Gurantz in view of Sambamurthy discloses wherein the transmitter transmits robust repetitious subcarriers according to a predetermined format (Gurantz para. 20, para. 49-53, the modem has a transmitter capable of producing a probe signal during the communication with other within LAN by using the method of OFDM format, and in the process the OFDM will create multiple subcarrier representing by 1 or 0, therefore subcarrier 1 or 0 will repeat during OFDM process, finally, the transmitter transmits the OFDM signal to LAN).

Regarding claim 27, Gurantz discloses all limitation of claim 26. Gurantz further discloses utilizing communication to transmit the communication data to communicate to the at least one node (para. 20, para. 38-39, para. 49-53).

Gurantz does not explicitly disclose utilizing [burst] communication.

Sambamurthy teaches [utilizing] burst [communication] (col. 21, line 23, col. 25, line 66-col. 26, line 10).

It would be obvious to one of ordinary in the art at the time of invention to modify Gurantz to include [utilizing] burst [communication], as taught by Sambamurthy, in order to improve the data communication.

Regarding claim 28, Gurantz in view of Sambamurthy discloses wherein utilizing burst communication includes utilizing packet communication to communicate to the at least one node (Gurantz, Fig. 2, para. 20, Sambamurthy,

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col. 21, line 23, col. 25, line 66-col. 26, line 10 , abstract, Fig. 1B, Fig. 5A, col. 5, lines 60-col. 6, line 12, col. 22, lines 5-53).

Regarding claim 29, Gurantz in view of Sambamurthy discloses wherein the packet communication utilizes formatting information (Gurantz, para. 38-39, para. 49-53, Sambamurthy, Fig. 1B, Fig. 5A, col. 5, lines 60-col. 6, line 12, col. 22, lines 5-53).

Regarding claim 30, the method claim is met by the rejection of claim 6.

Regarding claim 31, Gurantz in view of Sambamurthy discloses wherein the preamble includes preamble data, and wherein the transmitter is capable of changing the properties of the preamble data on a packet-by-packet basis (Gurantz, para. 20, para. 49-53, Sambamurthy, Fig. 1B, Fig. 5A, col. 5, lines 60-col. 6, line 12, col. 22, lines 5-53).

Regarding claim 32, the method claim is met by the rejection of claim 16.

Regarding claim 33, the method claim is met by the rejection of claim 17.

Regarding claim 34, the method claim is met by the rejection of claim 18.

5. Claims 9, 12, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gurantz in view of Sambamurthy and further in view of Kim (US 2004/0170157 A1).

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Regarding claim 9, Gurantz in view of Sambamurthy discloses all limitation of claim 6. Gurantz in view of Sambamurthy further discloses providing conditionally access to the data packets (para. 42).

Gurantz in view of Sambamurthy does not explicitly disclose wherein the formatting includes packet encryption.

Kim teaches wherein the formatting includes packet encryption (para. 8, para. 12).

It would be obvious to one of ordinary in the art at the time of invention to modify Gurantz in view of Sambamurthy to include wherein the formatting includes packet encryption, as taught by Kim, in order to protect the data packet from unauthorized usage.

Regarding claim 12, the instant claim is analyzed with respect to claim 9.

Regarding claim 35, the method claim is met by the rejection of claim 9.

6. Claim 13 and 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gurantz in view of Sambamurthy and further in view of Kim (US 2004/0170157 A1) and further in view of Fortenberry (6,005,939).

Regarding claim 13, Gurantz in view of Sambamurthy and further in view of Kim discloses all limitation of claim 12.

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Gurantz in view of Sambamurthy and further in view of Kim does not explicitly discloses [wherein the encryption utilizes] Date Encryption Standard ("DES").

Fortenberry teaches [wherein the encryption utilizes] Date Encryption Standard ("DES") (col. 9, lines 43-47).

It would be obvious to one of ordinary in the art at the time of invention to modify Gurantz in view of Sambamurthy and further in view of Kim to include wherein the encryption utilizes] Date Encryption Standard ("DES"), as taught by Fortenberry, in order to standardize the encryption method by using the industry wide know Encryption method in DES (col. 9, lines 43-47).

Regarding claim 37, the method claim is met by the rejection of claim 13.

7. Claims 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gurantz in view of Youge (6,522,650 B1).

Regarding claim 15, Gurantz discloses all limitation of claim 14, and further discloses wherein the transmitter utilizes OFDM applications.

Gurantz does not explicitly disclose [wherein the transmitter] utilizes padding [to utilize an integral number of OFDM symbols].

Youge teaches [wherein the transmitter] utilizes padding [to utilize an integral number of OFDM symbols] (Fig. 3, el. 114, col. 8, lines 22-39).

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It would be obvious to one of ordinary in the art at the time of invention to modify Gurantz to include [wherein the transmitter] utilizes padding [to utilize an integral number of OFDM symbols], as taught by Youge, in order to provide a separation between two data block and indicates the ending of one data block.

8. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sambammurthy in view of Gurantz.

Regarding claim 45, Sambammurthy discloses a physical layer transmitter capable of transmitting packets to a plurality of nodes in a broadband cable network ("BCN") (Fig. 1 and 2, abstract, col. 2, lines 1-21), the transmitter comprising:

a Media Access Controller ("MAC") subsystem (el. 14b, el. 104) capable of providing data and control packets for transmission within the network (Fig. 1A and 2, col. 2, line 13- 33, col. 4, line 65-col. 5, line 67, col. 22, line 1-53);

a modem subsystem in signal communication with the MAC subsystem, the Modem subsystem capable of receiving the data and control packets from the MAC subsystem and appending control information to the data and control packets (Fig. 1A and 2, col. 2, line 13- 33, col. 4, line 65-col. 5, line 67, col. 11, lines 13-col. 13, line 67, col. 22, line 1-53, modem refers to Transmit functionality (el. 110, el. 118) component and receive functionality component (el. 112, el. 120) in communication with the network bus interface controller); and

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a subsystem in signal communication with the modem subsystem, and capable of receiving the data and control packets from the modem subsystem (Fig. 1A and 2, col. 2, line 13- 33, col. 4, line 65-col. 5, line 67, col. 11, lines 13-col. 13, line 67, Supermac management (el. 117) is in data communication with el. 110, 112, 118, and 120).

Sambammurthy does not explicitly discloses data transmission within the BCN (broadband cable network), and a [RF] subsystem in signal communication with the modem subsystem and upconverting the data and control packets received from the modem subsystem.

Gurantz teaches data transmission within the BCN (broadband cable network) (para. 12-13, para. 20),

and a RF subsystem in signal communication with the modem subsystem and upconverting the data and control packets received from the modem subsystem (Fig. 2, para. 20, para. 46-53, the subsystem uses OFDM to convert the receive data packets from the receiving component of the modem).

It would be obvious to one of ordinary in the art at the time of invention to modify Sambammurthy to include discloses data transmission within the BCN (broadband cable network), and a RF subsystem in signal communication with the modem subsystem and upconverting the data and control packets received from the modem subsystem, as taught by Gurantz, in order to apply the industry wide know method (OFDM) to better processing the data (para. 52-53).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAI CHEN whose telephone number is (571)270-5679. The examiner can normally be reached on 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Pendleton can be reached on 571-272-7527. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C. C.
Examiner, Art Unit 2425

/Brian T. Pendleton/

Supervisory Patent Examiner, Art Unit 2425